

IN THE CLAIMS

1 1 (Original). A light-emitter structure comprising:

2 a platform;

3 an  $\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}$  lower clad region formed on said platform and having a

4 lattice constant between approximately 5.49 Å and 5.62 Å;

5 a strained quantum well active region formed on said lower clad region; and

6 an  $\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}$  upper clad region formed on said strained quantum well

7 active region.

1 2 (Original). The light-emitter structure of claim 1, wherein said strained quantum well

2 active region comprises an  $\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}$  strained quantum-well active region where

3  $0.27 \leq x \leq 0.50$  and  $0 \leq y \leq 1$  formed on said lower clad region.

1 3 (Original). The light-emitter structure of claim 1, wherein said upper clad region is

2 approximately lattice-matched to said lower clad region formed on said strained

3 quantum well.

1 4 (Original). The light-emitter structure of claim 1, wherein said platform comprises a

2  $\nabla_x[\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded buffer placed between a substrate and said lower clad

3 region.

1 5 (Original). The light-emitter structure of claim 4, wherein said substrate comprises

2 GaP.

1 6 (Original). The light-emitter structure of claim 1 further comprising a cap layer that  
2 is deposited on said upper clad region.

1 7 (Original). The light-emitter structure of claim 6, wherein said cap layer comprises  
2 InGaP that is deposited on and approximately lattice-matched to said upper clad region.

1 8 (Original). The light-emitter structure of claim 1 further comprising separate  
2 confinement heterostructures (SCH) placed between said upper clad region, said lower  
3 clad region and said strained quantum well active region.

1 9 (Original). The light-emitter structure of claim 8, wherein said separate confinement  
2 heterostructures (SCH) comprises InGaP or InAlGaP that is approximately lattice-  
3 matched to said clad layer, and placed between said upper clad region, lower clad  
4 region and said strained quantum well active region.

1 10 (Original). The light-emitter structure of claim 1, wherein said upper and lower  
2 clad regions comprise concentration values  $x=0.22$  and  $y=0.2$ .

1 11 (Original). The light-emitter structure of claim 1, wherein said strained quantum  
2 well active region comprises concentration values  $x=0.32$  and  $y=0$ .

1 12 (Original). The light-emitter structure of claim 1, wherein said lower clad region  
2 and upper clad region are n-doped and p-doped, respectively.

1 13 (Original). The light-emitter structure of claim 1, wherein said lower clad region  
2 and upper clad region are p-doped and n-doped, respectively.

1 14 (Currently Amended). The light-emitter structure of claim 1 4, wherein said  $\nabla_x[\text{In}_x$   
2  $(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded buffer and said lower clad region are n-doped, and said upper  
3 clad is p-doped.

1 15 (Currently Amended). The light-emitter structure of claim 1 4, wherein said  $\nabla_x[\text{In}_x$   
2  $(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded buffer and said lower clad region are p-doped, and said upper  
3 clad is n-doped.

1 16 (Currently Amended). The light-emitter structure of claim 1 4, wherein said  $\nabla_x[\text{In}_x$   
2  $(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded buffer is undoped, said lower clad region is n-doped, and said  
3 upper clad region is p-doped.

1 17 (Currently Amended). The light-emitter structure of claim 1 4, wherein said  $\nabla_x[\text{In}_x$   
2  $(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded buffer is undoped, said lower clad region is p-doped, and said  
3 upper clad region is n-doped.

1 18 (Original). The light-emitter structure of claim 1, wherein said strained quantum  
2 well active region is doped.

1 19 (Original). The light-emitter structure of claim 8, wherein said SCH structures are  
2 doped.

1 20 (Original). The light-emitter structure of claim 1 further comprising a double top  
2 contact.

1 21 (Original). The light-emitter structure of claim 1 further comprising an insulator  
2 stripe top contact.

1 22 (Withdrawn). A method of forming a light-emitter structure comprising:  
2 providing a platform;  
3 forming an  $\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}$  lower clad region having a lattice constant between  
4 approximately 5.49 Å and 5.62 Å on said platform;  
5 forming a strained quantum well active region on said lower clad region; and  
6 forming an  $\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}$  upper clad region on said strained quantum well  
7 active region.

1 23 (Withdrawn). The method of claim 22, wherein said strained quantum well active  
2 region comprises an  $\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}$  strained quantum-well active region where  
3  $0.27 \leq x \leq 0.50$  and  $0 \leq y \leq 1$  formed on said lower clad region.

1 24 (Withdrawn). The method of claim 22, wherein said upper clad region is  
2 approximately lattice-matched to said lower clad region formed on said strained  
3 quantum well.

1 25 (Withdrawn). The method of claim 1, wherein said platform comprises a  
2  $\nabla_x[\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded buffer placed between a substrate and said lower clad  
3 region..

1 26 (Withdrawn). The method of claim 25, wherein said substrate comprises GaP.

1 27 (Withdrawn). The method of claim 22 further comprising depositing a cap layer on  
2 said upper clad region.

1 28 (Withdrawn). The method of claim 27, said cap layer comprises InGaP that is  
2 deposited on and approximately lattice-matched to said upper clad region.

1 29 (Withdrawn). The method of claim 22 further comprising placing separate  
2 confinement heterostructures (SCH) between said upper clad region, said lower clad  
3 region and said strained quantum well active region.

1 30 (Withdrawn). The method of claim 29, wherein said separate confinement  
2 heterostructures (SCH) comprises InGaP or InAlGaP that is approximately lattice-  
3 matched to said clad layer and placed between said upper clad region, lower clad region  
4 and said strained quantum-well active region.

1 31 (Withdrawn). The method of claim 22, wherein said upper and lower clad regions  
2 comprise of concentration values  $x=0.22$  and  $y=0.2$ .

1 32 (Withdrawn). The method of claim 22, wherein said strained quantum well active  
2 region comprises of concentration values  $x=0.32$  and  $y=0$ .

1 33 (Withdrawn). The method of claim 22, wherein said lower clad region and upper  
2 clad region are n-doped and p-doped, respectively.

1 34 (Withdrawn). The method of claim 22, wherein said lower clad region and upper  
2 clad region are p-doped and n-doped, respectively.

1 35 (Currently Amended). The method of claim ~~22~~25, wherein said  $\nabla_x[\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$   
2 graded buffer and said lower clad region are n-doped and said upper clad is p-doped.

1 36 (Withdrawn). The method of claim 22, wherein said  $\nabla_x[\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded  
2 buffer and said lower clad region are p-doped and said upper clad is n-doped.

1 37 (Withdrawn). The method of claim 22, wherein said  $\nabla_x[\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded  
2 buffer is undoped, said lower clad region is n-doped, and said upper clad region is p-  
3 doped.

1 38 (Withdrawn). The method of claim 22, wherein said  $\nabla_x[\text{In}_x(\text{Al}_y\text{Ga}_{1-y})_{1-x}\text{P}]$  graded  
2 buffer is undoped, said lower clad region is p-doped, and said upper clad region is n-  
3 doped.

1 39 (Withdrawn). The method of claim 22, wherein said strained quantum well active  
2 region is doped.

1 40 (Withdrawn). The method of claim 29, wherein said SCH structures are doped.

1 41 (Withdrawn). The method of claim 22 further comprising providing a double top  
2 contact.

1 42 (Withdrawn). The method of claim 22 further comprising providing an insulator  
2 stripe top contact.

1 43 (Withdrawn). The method of claim 22, wherein said platform comprises a substrate  
2 that is lattice-matched to said lower clad region.

- 1 44 (Original). The light-emitter structure of claim 1, wherein said platform comprises
- 2 a substrate that is lattice-matched to said lower clad region.